

Serial No. 10/692,483
Amdt. dated Sept. 28, 2007
Reply to Office action of July 11, 2007

REMARKS

This amendment is in response to the final Office Action dated July 11, 2007, and is filed concurrently with a Request for Continued Examination pursuant to 37 CFR 1.114. Entry of this Amendment and reconsideration of this application are respectfully requested.

Claim Rejections under 35 USC 101

The Examiner rejected claims 1-6 under 35 U.S.C. §101 as being directed to non-statutory subject matter. In response, claim 1 has been extensively amended, and the applicants respectfully submit that the amended claim 1, and its dependent claims 2-7, are patentable under 35 U.S.C. §101 as directed to statutory subject matter.

Section 101 of the Patent Act establishes four categories of statutory subject matter: machine, process, manufacture, and composition of matter. An invention may be patented only if it fits within one of the statutory classes of subject matter. State Street Bank & Trust v. Signature Financial Group Inc., 149 F.3d 1368, 1375 n. 9 (Fed.Cir. 1998). In recent years, the courts have greatly broadened the scope of what constitutes statutory subject matter. For example, the court in *State Street* found that the claims at issue in that case were directed to statutory subject matter because they recited "a practical application of an abstract idea" which produced "a useful, concrete and tangible result".

Synthesizing the guidance offered by the above case and other recent holdings produces the following:

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- A practical application of an abstract idea which produces a useful, concrete, and tangible result constitutes patentable subject matter under §101. This criteria is applicable to both apparatus and process claims.
- To be patentable under §101, it is not necessary for a process claim to recite hardware or software components for execution or involvement in the method.
- Abstract ideas, laws of nature and natural phenomena are the only subject matter which have consistently been found to be non-statutory under §101.

The applicants believe that, under the criteria listed above, the amended claim 1 is directed to statutory subject matter. As amended, claim 1 is directed to an apparatus with very specific structural elements, which receives certain inputs, operates on the inputs in defined ways, and produces a tangible and useful output with defined characteristics. In particular, the apparatus comprises:

- a random noise generator arranged to receive physical noise at an input and to generate random noise in response;
- a random pulse wave generator arranged to receive the random noise at an input, waveshape the random noise, and to generate a random pulse wave in response;
- a binary pulse sequence converter arranged to receive the random pulse wave at an input, to sample the random pulse wave with a first clock of a constant period and to convert it into a binary pulse sequence of a constant period, which has on/off of the sampled values as a pulse code; and

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- a binary pulse sequence code smoothing circuit arranged to receive the binary pulse sequence at an input, to un-reverse and reverse the polarity of the binary pulse sequence every half period of a second clock which is synchronous with and has a frequency which is related to that of the first clock by a division ratio, and to provide the un-reversed and reversed binary pulse sequence at an output, the output being a random number sequence;
- wherein un-reversing and reversing polarity ensures that the random number sequence has an appearance balance of 1/0 with an equal probability.

Thus, the amended claim is directed to a combination of elements which are well-defined both structurally and functionally, which produces a useful and tangible result. As such, the applicants submit that claim 1 clearly constitutes statutory subject matter which is not subject to rejection under §101, and request that the rejection of the claims under §101 be withdrawn.

Note that if the amended claim 1 is found to constitute statutory subject matter, then claims 2-7, each of which depends from claim 1, should also be found to constitute statutory subject matter.

Please also note that claim 1 has also been amended to specify that its second clock is synchronous with and has a frequency which is related to that of the first clock by a division ratio. This amendment finds support in the specification on page 10 at lines 21-24.

A new claim has been added - claim 7 - which specifies that

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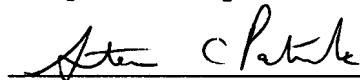
the frequency of the second clock is one-half that of the first clock.

Claims 3, 4, 5 and 6 have been amended solely to conform their language to that of the amended claim 1.

All of the claims presently in the application are believed to be in proper form for allowance. A Notice of Allowance is respectfully requested.

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Respectfully submitted,



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